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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/606,149	06/25/2003	Michael R. Elliott		3543

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EXAMINER	
HOPKINS, ROBERT A	

ART UNIT	PAPER NUMBER
1724	

DATE MAILED: 11/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/606,149	ELLIOTT, MICHAEL R.	
	Examiner	Art Unit	
	Robert A. Hopkins	1724	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *8-40* is/are allowed.

6)☒ Claim(s) *1 and 3-6* is/are rejected.

7)☒ Claim(s) *2 and 7* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1 and 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nutter(3885935) taken together with Brereton(1411606).

Nutter teaches a separator for a mist collection system comprising a cylindrical tube(4) provided with inlet and exit openings to allow air to be drawn therethrough, a set of stationary vanes(16) connected in the upstream portion of the tube and sized and positioned to direct the air flowing therethrough in a cyclonic path through the tube such that mist in the air therein migrates outwardly to and in the downstream direction along the inside wall of the tube, an annular collection chamber(10) defined in the downstream end of the tube and having an annular upstream opening coincident with the inside wall of the tube such that liquid flowing along the inside of the tube toward the downstream end thereof flows directly into the collection chamber, an annular flow restrictor positioned at the upstream opening of the collection chamber and sized for free flow of liquid along the inside wall of the tube into the chamber and for blocking back-flow out of the chamber, a drain hole(12) positioned near the downstream end of the collection chamber. Nutter is silent as to a flow interrupter projecting into the collection chamber to direct the liquid therein into the drain. Brereton discloses a separator for separating

particulate from an airflow including a cylindrical tube with inlet and exit openings, a spiral plate(13) for providing a centrifugal motion to an airflow, a drain hole(16) positioned at a downstream end of the tube, and a flow interrupter(24) projecting into the collection chamber to direct the separated particulate therein into the drain. It would have been obvious to someone of ordinary skill in the art at the time of the invention to provide a flow interrupter projecting into the chamber of Nutter so that the liquid is deflected from a centrifugal motion into the drain hole for collection(column 1 lines 53-56, column 2 lines 57-63 of Brereton). Nutter further discloses wherein the flow restrictor diverges conically(32) in the downstream direction to define a converging entrance to the chamber. Brereton further discloses wherein the flow interrupter includes a first portion that projects generally radially from and extends longitudinally along the inside wall of the tube(see figure 13). Brereton further discloses wherein the flow interrupter includes a second portion that extends substantially circumferentially from the first portion. Brereton further discloses wherein the flow interrupter is connected to project from downstream of the drain with respect to the swirling flow in the collection chamber to a position generally radially inwardly of the drain.

Allowable Subject Matter

Claims 2,7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Claim 2 recites " in which the flow restrictor is sized to provide radial clearance with the inside cylindrical wall of the tube of between approximately one-fourth(1/4) to one-half (1/2) inch". Nutter discloses a flow restrictor, but does not disclose dimensions for radial clearance with the inside cylindrical wall of the tube. It would not have been obvious to someone of ordinary skill in the art at the time of the invention to provide a radial clearance with the inside cylindrical wall of the tube of between approximately one-fourth(1/4) to one-half (1/2) inch because Nutter does not suggest such a modification.

Claim 7 recites " in which the vanes(i) are provided with leading edges set at an angle of approximately 25 degrees with respect to the inlet opening, and (ii) extend substantially longitudinally therefrom at an angle of approximately 35 degrees and for longitudinal distance of approximately four and one-half (4 ½) inches". Nutter discloses vanes, however Nutter does not teach the claimed dimensions for the vanes. It would not have been obvious to someone of ordinary skill in the art at the time of the invention to provide vanes with the claimed angle and length because Nutter does not suggest such a modification.

Claims 8-40 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Claim 8 recites " in which the flow restrictor is sized to provide radial clearance with the inside cylindrical wall of the outer tube of between approximately one-fourth(1/4) to one-half (1/2) inch". Nutter discloses a flow restrictor, but does not

disclose dimensions for radial clearance with the inside cylindrical wall of the tube. It would not have been obvious to someone of ordinary skill in the art at the time of the invention to provide a radial clearance with the inside cylindrical wall of the outer tube of between approximately one-fourth(1/4) to one-half (1/2) inch because Nutter does not suggest such a modification. Claims 9-13 depend on claim 8 and hence are also allowed.

Claim 14 recites "a drain hole positioned near the downstream end of the collection chamber for discharging the liquid therefrom. Kisaragi et al(5035730) discloses a mist collection system for rolling oil including an inlet(3), outlet(4), blower(B), cyclonic mist separator(2) with cylindrical wall and stationary vanes(1), and final mist cleaning station(8) downstream of the cyclonic mist separator. Kisarahi however discloses a vertically oriented separator, therefore it would not have been obvious to someone of ordinary skill in the art at the time of the invention to provide a drain hole positioned near the downstream end of the collection chamber of Kisaragi et al because Kisaragi et al does not suggest such a modification. Claims 15-20 depend on claim 14 and hence are also allowed.

Claims 21 and 27 recite "the vanes(i) being provided with leading edges set at an angle of approximately 25 degrees with respect to the inlet opening, and (ii) extending substantially longitudinally therefrom at an angle of approximately 35 degrees with respect to a longitudinal axis therethrough". Nutter discloses vanes, however Nutter does not teach the claimed dimensions for the vanes. It would not have been obvious to someone of ordinary skill in the art at the time of the invention to

provide vanes with the claimed angle because Nutter does not suggest such a modification. Claims 22-26 depend on claim 21 and hence are also allowed. Claims 28-33 depend on claim 27 and hence are alsos allowed.

Claim 34 recites "a transition opening establishing fluid communication between the collection chamber and the reservoir, the transition opening being defined in part with an inlet-side transition edge extending longitudinally in the tube upstream of the drain with respect to the swirling liquid in the collection chamber". Nutter fails to teach a transition opening establishing fluid communication between the collection chamber and the reservoir, the transition opening being defined in part with an inlet-side transition edge extending longitudinally in the tube upstream of the drain with respect to the swirling liquid in the collection chamber. It would not have been obvious to someone of ordinary skill in the art at the time of the invention to provide a transition opening establishing fluid communication between the collection chamber and the reservoir, the transition opening being defined in part with an inlet-side transition edge extending longitudinally in the tube upstream of the drain with respect to the swirling liquid in the collection chamber because Nutter does not suggest such a modification. Claims 35-40 depend on claim 34 and hence are also allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert A. Hopkins whose telephone number is 571-272-1159. The examiner can normally be reached on Monday-Thursday, 7:30am-5pm, every Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571-272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Rah
November 16, 2006

ROBERT HOPKINS
PRIMARY EXAMINER
Art Unit 1724